West Nile Virus Disease

Guidelines for clinicians -- testing at the Public Health Laboratories

Which patients will be tested for WNV by the Public Health Laboratories (PHL)?

PHL will provide testing for patients with suspected WNV neuroinvasive disease (fever and change in mental status, cerebrospinal fluid [CSF] pleocytosis, or other acute central or peripheral neurologic dysfunction) when there is no other likely diagnosis. In addition, we will also test pregnant or breastfeeding women, neonates or breastfeeding infants of infected mothers, and recent blood, tissue or organ donors or recipients. Confirmatory testing may be performed for persons with commercial laboratory evidence of WNV infection. Once WNV becomes established in the Pacific Northwest, criteria for testing at PHL may be revised.

Testing at PHL will not be performed without approval of your local health department and Washington State Department of Health Communicable Disease Epidemiology Section.

What about testing for non-neuroinvasive West Nile disease (West Nile fever)?

WNV testing (including antibody and nucleic acid detection assays) for patients with suspected non-neuroinvasive WNV disease is available from commercial reference laboratories.

What tests are available at PHL?

- IgM antibody capture enzyme immunoassay (EIA) of serum or CSF is the most sensitive test for WNV infection in immunocompetent patients, as more than 90% of those infected will have detectible serum IgM eight days after onset, and CSF antibody may be present even earlier. For patients with non-reactive or indeterminate serum specimens obtained before the eighth day of illness, a later specimen may be requested.[1]
- Polymerase chain reaction (PCR) assay may be performed on CSF or blood for evaluation of patients with immune dysfunction, but PCR is not recommended for routine diagnosis of WNV disease.

How to arrange testing at PHL:

Suspected or confirmed WNV infections are notifiable conditions in Washington. When you report a suspected WNV infection to your local health department, health department staff will obtain relevant information for case reporting and will facilitate testing at PHL.

[1] EIA for WNV IgM antibody may cross-react with antibody to other flaviviruses (St. Louis encephalitis, dengue, yellow fever, Japanese encephalitis) after immunization or natural infection with those viruses. Confirmation of WNV infection by EIA requires plaque-reduction neutralization assay, usually performed at Centers for Disease Control and Prevention (CDC).

Which specimens to obtain, when, and where to send them:

Submit > 1 cc of CSF or serum (separated serum, not whole blood) for EIA

- A serum specimen should be obtained more than 8 days after onset of symptoms
- A second serum specimen will be requested if the first is non-reactive or indeterminate and was obtained less than 8 days after onset of symptoms
- CSF obtained less than 3 days after onset of symptoms will be accepted, however, if non-reactive, this will not rule out WNV infection, and a serum specimen obtained more than 8 days after onset will be requested
- Specimens should be refrigerated and transported cold. Frozen CSF is acceptable. Avoid repeated freeze-thaw cycles
- Specimens should be submitted by your clinical laboratory with a completed DOH PHL Virus Examinations form to:

  Washington State Department of Health
  Public Health Laboratories
  1610 NE 150th St
  Shoreline, WA 98155.

For more information or to report a suspected case of WNV disease:

Call your local health department
(for contact information, see: www.doh.wa.gov/LHJMap/LHJMap.htm)
or the Washington State Department of Health Communicable Disease Epidemiology Section
at 206.418.5500 or toll free 877.539.4344.
Visit our web site at: www.doh.wa.gov/Notify/nc/wnv.htm